Supporting Information for

Inorganic $CsBi_3I_{10}$ Perovskite/Silicon Heterojunctions for Sensitive, Self-driven and Air-Stable NIR Photodetectors

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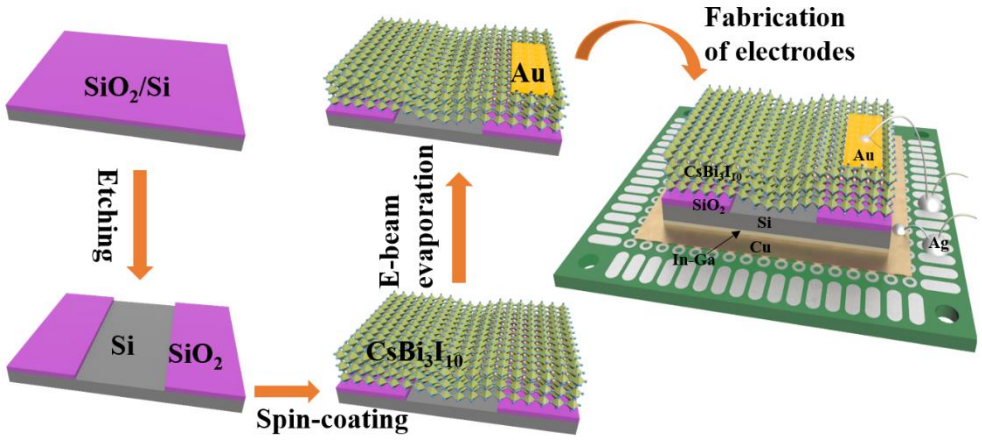

Figure S1. Schematic illustration of fabrication procedure of the $CsBi_3I_{10}$ perovskite/Si heterojunction photodetector.

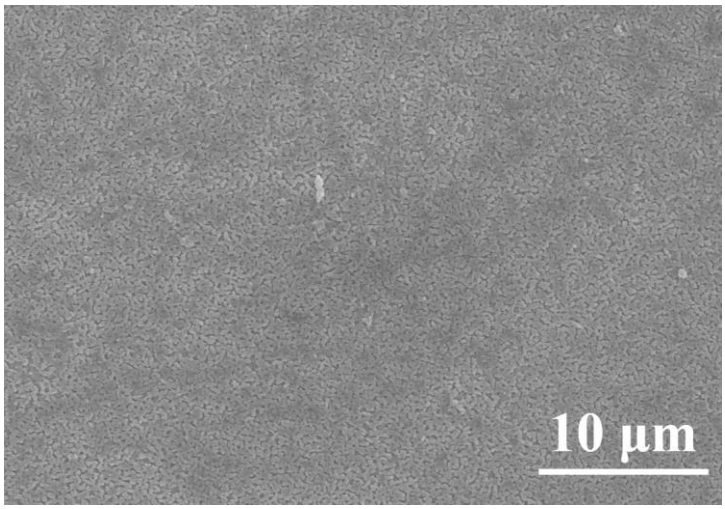

Figure S2 A top-view SEM image of $CsBi_3I_{10}$ film.

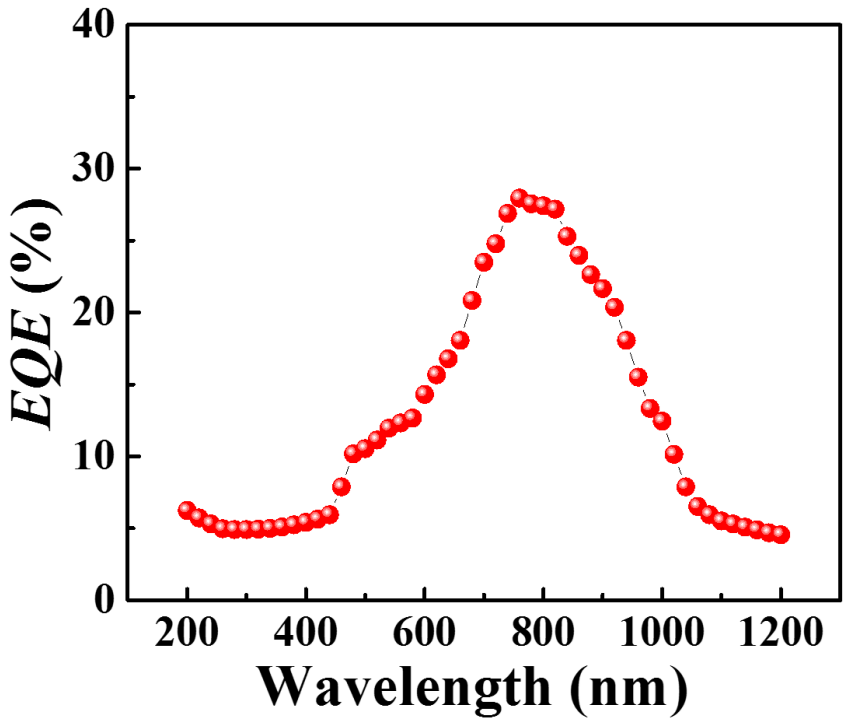

Figure S3 *EQE* of $CsBi_3I_{10}$ perovskite/Si heterojunction photodetector with different wavelength.

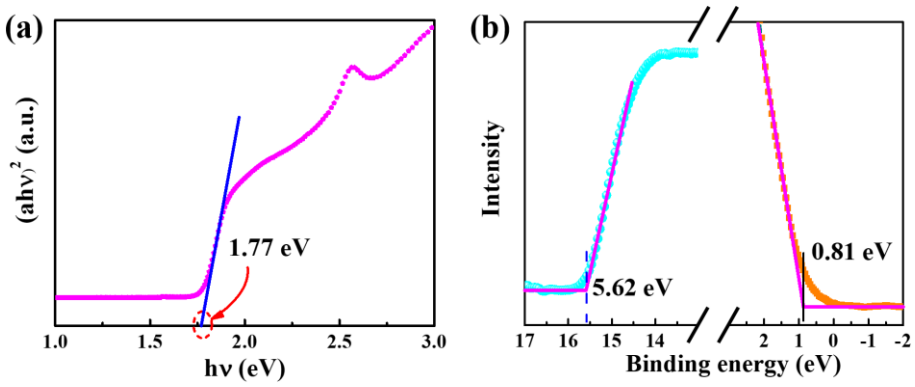

Figure S4 (a) The dependence of $(ahv)^2$ on hv for the $CsBi_3I_{10}$ perovskite, from which the band gap of ~1.77 eV was deduced. (b) UPS spectrum of the $CsBi_3I_{10}$ perovskite film.

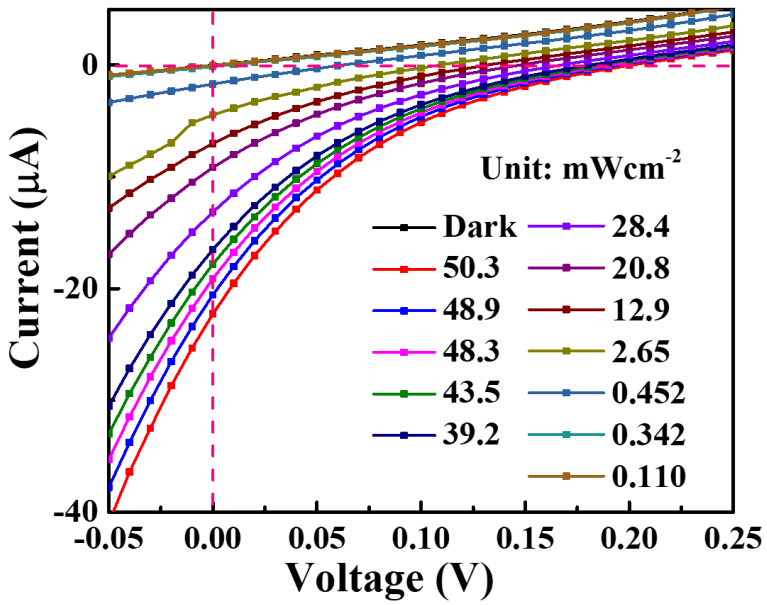

Figure S5 *I-V* characteristics of $CsBi_3I_{10}$ perovskite/Si heterojunction photodetector in dark and under 808 nm light illumination with varied light intensities.

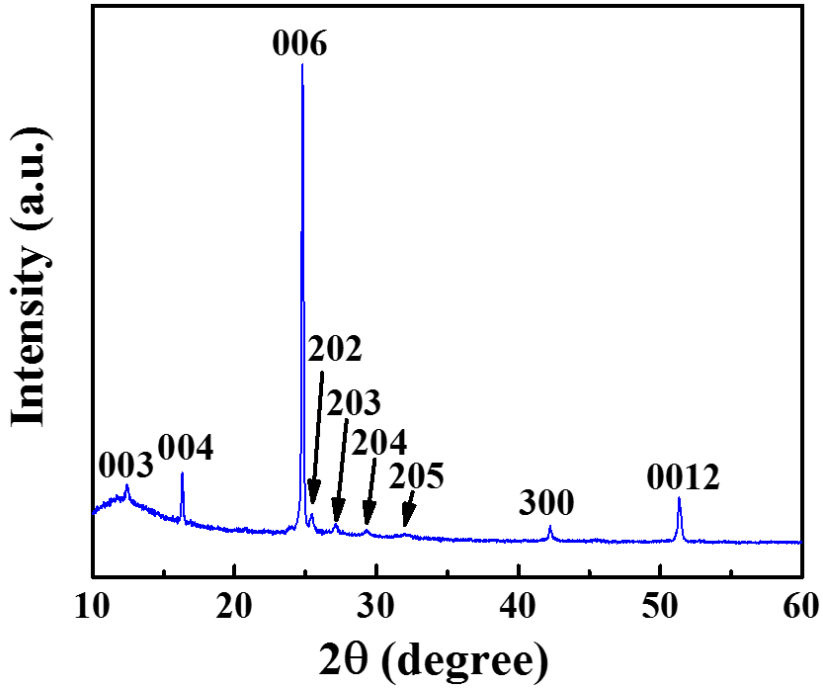

Figure S6 XRD pattern of the $CsBi_3I_{10}$ perovskite film after 3 months storage.